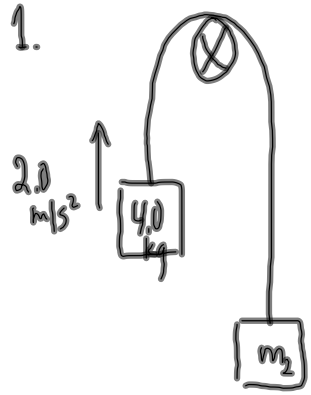
TEST CORRECTIONS

1.



Consider m_1

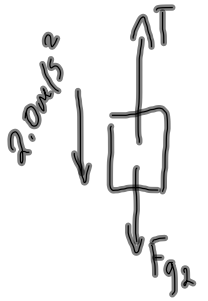
$\vec{F}_{net} = m\vec{a}$

$T - F_{g_1} = m_1 a$

$T = m_1 a + F_{g_1}$

$T = 47.2\,N$

Consider m_2



$\vec{F}_{net} = m\vec{a}$

$F_{g_2} - T = m_2 a$

$m_2 g - T = m_2 a$

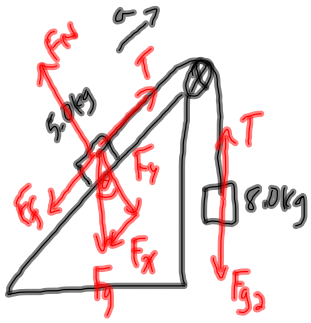
$m_2 g - m_2 a = T$

$m_2 (g - a) = T$

$m_2 = \frac{T}{(g-a)}$ = 6.0 kg

$m_2 = \frac{47.2\,N}{7.81\,m/s^2}$

2.



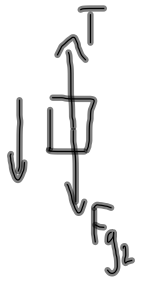
Consider m_1 (5.0 kg)

$\vec{F}_{net} = m\vec{a}$

$T - (F_f + F_x) = ma$

$T - 28.75\,N = (5.0\,kg)a$

Consider m_2 (8.0kg)



$\vec{F}_{net} = m\vec{a}$

$F_{g_2} - T = m_2 a$

$78.48\,N - T = (8.0\,kg)a$

3.8 m/s²

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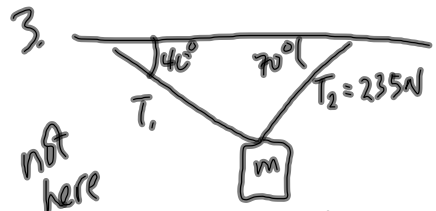
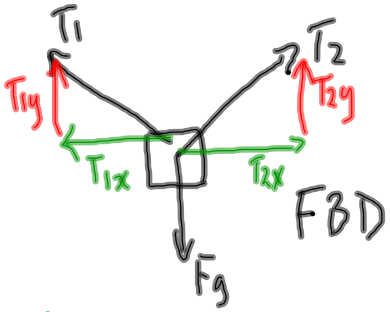
3.



not here

Diagram of the situation.



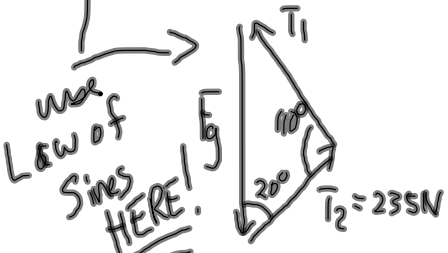
Horizontally:

$T_{1x} = T_{2x}$

⋮

find T_1

use Law of Sines HERE!



Vertically:

$T_{1y} + T_{2y} = F_g$

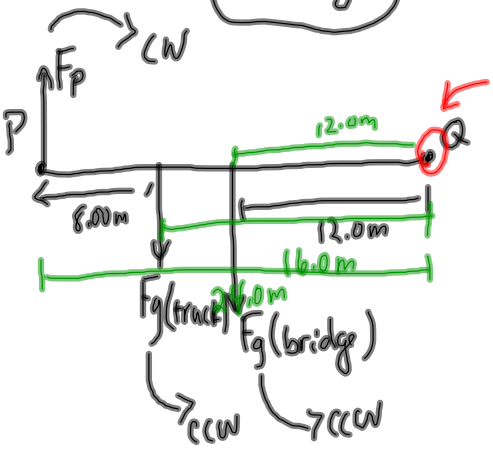
⋮

find m.

$T_1 = 105N$

$m = 29.4kg$

4.



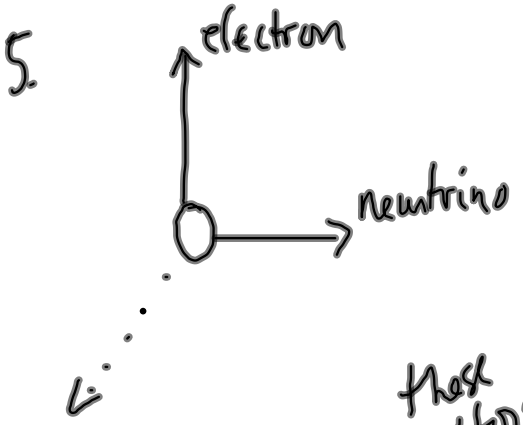
$\sum \tau_{CCW} = \sum \tau_{CW}$

$\tau_{truck} + \tau_{bridge} = \tau_P$

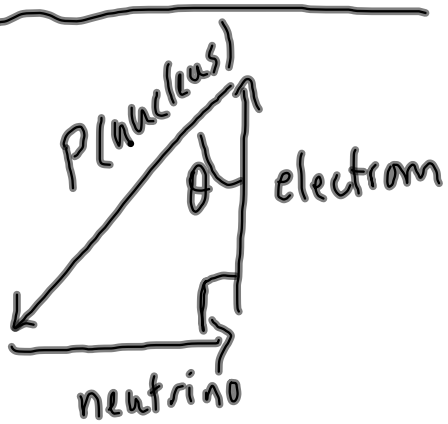
$(16m)(2.00\times10^4 kg)(9.81 m/s^2) + (12.0m)(1.25\times10^5 kg)(9.81 m/s^2) = F(24m)$

$F_P = 7.4\times10^5 N$

5.



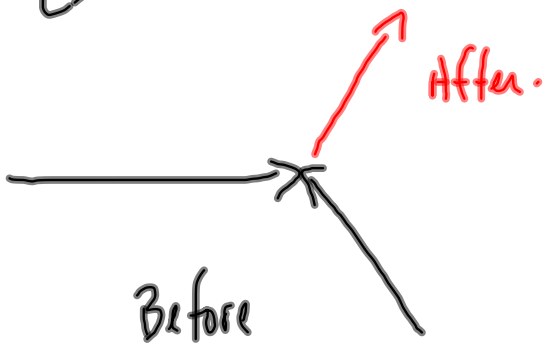
Momentum vector addition:



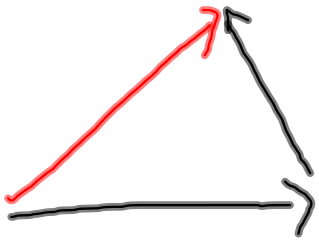
2.8×10^4 m/s [S 22° W]

these vectors add to zero!

6.



Momentum Vector Add.



OR

BEFORE

	x	y
P_1		
P_2		
P_{total}	X	Y

AFTER

	x	y
$P'_{combined}$		
P'_{total}	X	Y